Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard	)	GN Docket No. 16-142
	)	

COMMENTS OF AT&T

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AT&T Services, Inc.[1] submits the following comments in response to the Notice of Proposed Rulemaking issued by the Commission in the above-captioned proceeding.[2]

INTRODUCTION AND SUMMARY

AT&T and its affiliates have a rich history of innovation, and we have long advocated for regulatory policies that remove barriers to innovation. AT&T therefore does not oppose the Commission's proposal to allow broadcasters to deploy next-generation broadcast service using the ATSC 3.0 transmission standard "on a voluntary, market-driven basis."[3] At the same time, however, the Commission must ensure that consumers are not adversely affected by such changes and that the ATSC 3.0 transition is truly "voluntary" and "market-driven." In that regard, the broadcasters that reap the economic benefits of ATSC 3.0 should shoulder the costs of the transition—not over-the-air viewers, MVPDs, or MVPD subscribers.

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1 AT&T Services, Inc. is filing these comments on behalf of its affiliates that are multichannel video programming distributors ("MVPDs"), including DIRECTV (collectively, "AT&T").

2 *Authorizing Permissive Use of the "Next Generation" Broadcast Television Standard*, Notice of Proposed Rulemaking, 32 FCC Rcd 1670 (2017) ("NPRM"). The NPRM was issued following submission of a petition for rulemaking by a coalition of representatives of the broadcast and consumer electronics industry. *See* Joint Petition for Rulemaking of America's Public Television Stations, the AWARN Alliance, the Consumer Technology Association, and the National Association of Broadcasters, GN Docket No. 16-142 (filed Apr. 13, 2016) ("Petition for Rulemaking").

3 NPRM ¶ 1.

To that end, AT&T supports the adoption of rules that require an ATSC 1.0 simulcast: (1) be identical in content to the free, primary ATSC 3.0 video programming stream; (2) preserve the audiovisual format or quality of the ATSC 1.0 signal; and (3) impose minimal disruption to the population served by the existing ATSC 1.0 signal. These steps, at a minimum, are required to protect over-the-air consumers and MVPD subscribers from potential harm resulting from the transition to ATSC 3.0 broadcasts. Moreover, while AT&T agrees that broadcasters should be required to deliver one free over-the-air ATSC 3.0 video stream, the Commission should not stop there. The Commission can and should do more to deliver the benefits of the ATSC 3.0 transition to over-the-air viewers *first*. Accordingly, the Commission should consider ways for broadcasters to provide more robust ATSC 3.0 signals as a means to address geographic service limitations of the existing ATSC 1.0 standard and, in so doing, deliver over-the-air broadcast service to more consumers.

The Commission also should be aware of the obstacles and burdens that the ATSC 3.0 transition presents for MVPDs, which necessitate the adoption of rules to prevent broadcasters from abusing their market power in retransmission consent negotiations to artificially accelerate the transition and/or shift transition costs to MVPDs. Direct-broadcast satellite ("DBS") providers such as AT&T face significant capacity constraints on their spot beam satellites that will foreclose carriage of ATSC 3.0 signals with enhanced audiovisual characteristics. It therefore is imperative that the Commission take steps to ensure that MVPD carriage of ATSC 3.0 signals occurs at the discretion of the MVPD. In particular, broadcasters should not be able to condition carriage of ATSC 1.0 on an MVPD's "agreement" to carry its ATSC 3.0 signal. To accomplish this, the Commission can simply require that a broadcaster negotiate initial carriage of ATSC 3.0 signals: (a) separately from ATSC 1.0 carriage, and (b) only with an MVPD that,

prior to entering into the ATSC 3.0 carriage agreement, has a minimum of one year remaining on the retransmission consent agreement covering the station's ATSC 1.0 signal.

By the same token, broadcasters should be responsible for the costs MVPDs necessarily will incur to accommodate ATSC 1.0 simulcasting. The Commission also should make clear that broadcasters must continue to deliver a good-quality ATSC 1.0 signal to MVPDs throughout the transition, whether over the air or by some other mutually acceptable means. Finally, the Commission should adopt appropriate notice and filing requirements to provide for a smooth transition process, including the obligation that broadcasters file their simulcast agreements with the Commission and provide in-market MVPDs with access to such agreements.

DISCUSSION

I. THE COMMISSION SHOULD ENSURE THAT THE TRANSITION TO ATSC 3.0 AVOIDS DISRUPTION TO OVER-THE-AIR CONSUMERS AND MVPD SUBSCRIBERS

A. The Transition To ATSC 3.0 Must Not Harm Over-the-Air Consumers or MVPD Subscribers

Broadcasters tout the transition to the ATSC 3.0 transmission standard as a means to realize more efficient use of their spectrum and, in turn, drive innovation and the delivery of new and enhanced services to consumers.[4] Indeed, as the NPRM recognizes, the ATSC 3.0 standard could enable broadcasters to offer new services, possibly for a fee, either as a complement, or in addition, to their core broadcasting functionality.[5] While AT&T welcomes technological developments that will benefit consumers, the Commission should take steps to ensure that broadcasters' desire to further monetize their free spectrum rights does not harm those receiving

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4 Petition for Rulemaking at 2, 3, 7.

5 NPRM ¶ 70 (seeking comment on the regulatory implications if a "majority of an ATSC 3.0 station's spectrum/bandwidth is devoted to paid services" and on which ATSC 3.0-based services and features will be deemed "'ancillary services' within the meaning of [the Commission's] rules").

broadcast signals over the air or through an MVPD. Accordingly, AT&T recommends the adoption of rules to align broadcasters' incentives during the transition with the public interest, as described below.

1. Broadcasters Should Be Required To Simulcast in ATSC 1.0 Throughout the Transition.

The NPRM rightfully recognizes that the transition to the ATSC 3.0 transmission standard is in its infancy,[6] and many broadcasters have not committed to this transition. Because ATSC 3.0 transmissions are not backward-compatible with existing televisions and receivers, consumers first will be required to upgrade their televisions or purchase converters and/or other equipment before they can view ATSC 3.0 broadcasts.[7] Likewise, MVPDs such as AT&T are not currently capable of either receiving, transcoding, or retransmitting ATSC 3.0-delivered programming. As AT&T observed in its previous comments in this proceeding, and as the NPRM acknowledges, numerous components of the ATSC 3.0 standard that relate to MVPD carriage of ATSC 3.0 signals remain incomplete.[8] Similarly, equipment that MVPDs would need to receive ATSC 3.0 broadcasts also is not yet available in the marketplace for testing, much less implementation,[9] and AT&T is not aware of any equipment vendor that has a timetable for the availability of such equipment. For these reasons, even the broadcast industry

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6 *See id.* ¶ 29 (acknowledging that "the ATSC's work on the new 3.0 standard is not yet complete"). For that matter, the NPRM recognizes that "[a]t the time the Petition [for Rulemaking] was filed, A/321 was the only part of the ATSC 3.0 physical layer that had been ratified by the ATSC." *Id.* ¶ 8. The ATSC "ratified the A/322 part of the ATSC 3.0 physical layer" only last September, months after the comment cycle adopted following submission of the Petition for Rulemaking had closed. *See id.*

7 *See id.* ¶ 9.

8 *See* Comments of AT&T, GN Docket No. 16-142, at 4-5 (filed May 26, 2016) ("AT&T Comments"); NPRM ¶ 29; *id.* ¶ 41 (seeking comment on the threshold question of "[w]hat equipment would be necessary for an MVPD to carry an ATSC 3.0 stream on a voluntary basis").

9 AT&T Comments at 4-5 ("[T]here are no decoders, down converters or transcoders in production that AT&T could test (let alone purchase) to verify compatibility with its DIRECTV and U-verse platforms.").

recognizes that local simulcasting will be necessary during the transition "so that viewers will not be disenfranchised."[10] Accordingly, AT&T supports adoption of the language proposed for new Section 73.624(b)(3) of the Commission's rules, but also urges the Commission to make clear that the simulcast obligation requires that the content of the ATSC 1.0 stream, and that of the primary over-the-air ATSC 3.0 stream, be identical.[11]

2. Broadcasters Should Be Prohibited from Degrading the Format or Quality of ATSC 1.0 Service During the Transition.

While the adoption of the ATSC 1.0 simulcast obligation represents an important first step in preserving over-the-air broadcasts for the viewing public, additional measures are necessary to protect and promote the public interest during the transition. Absent Commission oversight, AT&T is concerned that broadcasters will have the incentive to degrade the HD quality of their ATSC 1.0 simulcasts as compared to their current HD programming, or no longer provide an HD service at all in their ATSC 1.0 signals, both as a means to minimize the bandwidth an ATSC 1.0 host station must devote to another broadcaster's signal (and thereby maximize available space for other broadcast streams), and in an effort to make ATSC 3.0 service appear more attractive (thereby accelerating, artificially, the transition to ATSC 3.0). Although the Commission acknowledges the importance of preserving ATSC 1.0 service throughout the transition,[12] the NPRM does not address the considerable harm that would occur to consumers and MVPD subscribers if they lose access to the same-quality HD ATSC 1.0

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10 *See* Petition for Rulemaking at 17; NPRM ¶ 10.

11 *See* NPRM ¶ 11 (acknowledging the potential ambiguity of the term "simulcast").

12 *See id.* ¶ 9 (describing the local simulcast obligation as necessary "to mitigate disruption to over-the-air viewers").

broadcast channels they have come to expect.[13] The Commission should adopt rules that affirmatively prohibit such degradation.

As a condition of transitioning to ATSC 3.0 transmissions, the Commission should require broadcasters to transmit ATSC 1.0 simulcasts in the same audiovisual format or quality in which they broadcast today. Broadcasters otherwise could choose to downgrade their ATSC 1.0 simulcasts during the transition—for example, by replacing the existing HD ATSC 1.0 signal with an SD ATSC 1.0 simulcast or an HD signal of lesser perceived picture quality, resulting in considerable consumer harm.[14] Likewise, because MVPDs, including AT&T, often rely on over-the-air reception of broadcast signals to retransmit local programming to their subscribers,[15] MVPD subscribers also would lose access to that programming in HD. In such circumstances, consumers—justifiably—would be angry and confused. AT&T therefore submits that broadcast stations should be prohibited from reducing the audiovisual format or quality of their ATSC 1.0 signals, or otherwise degrading the format of the signal, for the duration of the transition period. In other words, if a station currently broadcasts in HD today, its over-the-air simulcast should be broadcast in the same-quality HD during the transition.

To accomplish this goal, the Commission could prohibit a broadcaster from compressing their MPEG2 ATSC 1.0 simulcast signal materially more than it does today. Increased compression of MPEG2 signals at the broadcast facility has the potential to result in lower off-air picture quality, whether that reception point is a consumer's antenna or an MVPD headend. In the alternative, the Commission could limit ATSC 1.0 host stations to transmitting only two HD

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13 *See* Petition for Rulemaking at 9 (explaining that HD video "has become the baseline" for consumers today).

14 *See id.*

15 As discussed below, AT&T and other MVPDs rely on over-the-air reception either as the primary means of facilitating retransmission of broadcast signals to their subscribers, or as a critical back-up in the event primary access is lost or interrupted. *See* Section II.C., *infra*.

video streams. In AT&T's experience, carriage of more than two HD streams in a single 6 MHz ATSC 1.0 channel degrades the individual streams to a point that consumers' viewing experience would be negatively affected overall, and severely affected during broadcasts of certain high-complexity content (*i.e.*, content that is more challenging to compress efficiently) such as live sporting events.

In any event, if broadcasters are permitted to degrade the format of their ATSC 1.0 simulcasts, such degradation should not jeopardize DBS providers' compliance with the Commission's rules.[16] If a broadcaster transmits only an SD video stream in the current ATSC 1.0 standard, the Commission should clarify that a DBS provider's carriage of the video stream in SD does not violate the Commission's HD carry-one, carry-all rule if the DBS provider continues to retransmit other broadcasters' channels in HD in the same market.

3. Broadcasters Should Be Required To Mitigate the Loss of Over-the-Air ATSC 1.0 Simulcast Signals.

As the NPRM recognizes, some channel sharing arrangements will cause a shift in the service contour of broadcast stations that relocate their ATSC 1.0 signals.[17] While some change in over-the-air signal coverage may occur, whether it be in the broadcast channel, the transmitter location, or another transmitter characteristic, AT&T believes that any such change should be kept to a minimum, and that the aim of any transition in transmission technology should be to ensure that all consumers in a local market (not just those currently covered by a broadcast station's existing noise-limited service contour) are able to receive high-quality over-the-air broadcast signals. In any event, as discussed below, relocation of an ATSC 1.0 signal should not be permitted to disenfranchise existing over-the-air consumers and MVPD subscribers.

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16 *See* 47 C.F.R. § 76.66(k).

17 NPRM ¶ 23.

The Commission need not start from scratch to accomplish this goal. Indeed, the preservation of over-the-air service was a significant concern of broadcasters for the post-auction channel reassignment and repack period now underway.[18] The Commission should follow this precedent and adopt the same threshold for population loss used in the incentive auction to define broadcasters' ATSC 1.0 service obligation for the ATSC 3.0 transition.[19]

Significantly, broadcasters were adamant that the Commission adopt a post-incentive auction channel reassignment and repack methodology not only to preserve individual stations' total population served, but to preserve each eligible station's *existing* viewer base.[20] NAB, for example, argued that the Commission should "provide each broadcaster with the *same coverage* and the *same population* that it now serves," explaining that "seeing viewers as fungible … could lead to perverse results."[21] NAB provided examples, citing specific and "devastating" displacement scenarios in which "viewers who are currently served by [a particular broadcast station] will simply no longer have the same access to it."[22] The Commission heeded these concerns and adopted a methodology to "preserve [over-the-air broadcast] service to the same specific viewers" served by a broadcast station as of the date of the enactment of the Spectrum Act.[23] Specifically, the Commission stated that channel reassignments would not "reduce another station's population served … by more than 0.5 percent."[24]

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18 *See, e.g., Expanding the Economic Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567 ¶¶ 120-26 (2014) ("*Incentive Auction Order*") (acknowledging the broadcast industry's preferred interpretation of Section 6403(b)(2) of the Spectrum Act that broadcasters be protected "from any change in coverage area or population served in the repacking process"); *id.* ¶ 180 (same).

19 *See id.* ¶ 179.

20 *See id.* ¶ 179 n.603 (citing comments of NAB, broadcast affiliate groups, and broadcast networks, among others).

21 Comments of National Association of Broadcasters, GN Docket No. 12-268, at 19, 24 (filed Jan. 25, 2013) (emphasis in original) ("NAB Incentive Auction Comments").

22 *Id.* at 26, 24.

23 *Incentive Auction Order* ¶ 179.

24 *Id.*

Having succeeded in preserving their viewer bases following the incentive auction, broadcasters should not be allowed to abandon them now or in the future in the name of "flexibility" to deploy the ATSC 3.0 transmission standard.[25] On the contrary, the same public interest considerations exist in the ATSC 3.0 transition context, particularly as they relate to the continued availability of ATSC 1.0 service throughout the transition. In fact, concerns regarding the potential disenfranchisement of consumers arguably are even *more* compelling as they relate to the ATSC 3.0 transition. In directing the Commission to conduct the incentive auction, Congress made the affirmative decision that the public interest goal of making more spectrum available for mobile broadband use outweighed the inevitable disruption that would occur to some broadcasters, over-the-air viewers, and MVPDs as a result of the channel reassignment and repack process.[26] Congress has made no such determination with respect to the ATSC 3.0 transition. Rather, the transition to ATSC 3.0 is intended to be entirely voluntary and market-driven.[27] Accordingly, preservation of consumers' access to ATSC 1.0 service throughout the transition should be the priority of the Commission—and the obligation of broadcasters—throughout the transition.

Under the standard AT&T proposes (*i.e.*, the same population loss standard adopted for the repack), a broadcaster would have the flexibility to enter into a simulcast relationship with any other in-market broadcaster so long as the over-the-air coverage area of the ATSC 1.0 simulcast continues to serve the same (or greater) viewer population of the pre-transition over-

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25 NPRM ¶ 2.

26 *See* 47 U.S.C. § 1452(a); *Expanding the Economic Innovation Opportunities of Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking, 27 FCC Rcd 12357 ¶ 26 (2012) ("Congress passed the Spectrum Act in early 2012, authoriz[ing] the Commission to conduct incentive auctions to help meet the increasing demand for spectrum to provide highly valued wireless broadband services."); *Incentive Auction Order* ¶ 122 (acknowledging the Spectrum Act's "goal of repurposing spectrum").

27 *See* NPRM ¶ 1.

the-air ATSC 1.0 signal, within a 0.5 percent margin of loss.[28] Put another way, the coverage area of the ATSC 1.0 simulcast must sufficiently replicate the coverage area of the pre-transition ATSC 1.0 signal such that no more than 0.5 percent of the population served by the pre-transition over-the-air ATSC 1.0 signal would be displaced from ATSC 1.0 service during the transition. AT&T further proposes that broadcasters entering into a simulcast relationship would be required to certify their compliance with the 0.5 percent ATSC 1.0 service loss standard at the time they submit the applicable channel sharing agreement to the Commission.[29] To the extent the ATSC 1.0 host station's existing noise-limited service contour would disenfranchise more than 0.5 percent of the population served by the ATSC 3.0 host station, the stations would be required to correct such coverage gaps to bring the ATSC 1.0 simulcast into compliance with the standard prior to the launch of ATSC 3.0 service.

B. Broadcasters' ATSC 3.0 Service Should Benefit Over-the-Air Consumers, First and Foremost

Broadcast television stations are the "trustees" of the highly valuable public airwaves.[30] As such, broadcasters must satisfy certain public interest obligations—most notably, the requirement to use the public airwaves to contribute to localism and diversity in their communities. According to broadcasters, ATSC 3.0 transmissions "will allow dramatic improvements in the robustness of over-the-air signals," including by "enabling improved

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28 For the same reasons articulated by the broadcast industry in the incentive auction proceeding, "population served" should not be treated as "total population" for purposes of articulating broadcasters' ATSC 1.0 service obligation throughout the ATSC 3.0 transition. *See Incentive Auction Order* ¶ 179. Rather, each broadcaster should be required to continue to provide, at a minimum, "the *same coverage*" to "the *same population* that it now serves." NAB Incentive Auction Comments at 19 (emphasis in original).

29 As discussed below, AT&T supports the NPRM's proposal to require broadcasters to file their simulcast agreements. *See* Section III.B., *infra*.

30 NPRM ¶ 67.

reception."[31] At the same time, broadcasters have expressed tremendous excitement about potential new services, service enhancements, and features that transmissions in ATSC 3.0 may enable.[32] While the spectrum efficiencies unlocked by the ATSC 3.0 transmission standard should enable broadcasters to pursue these complementary goals in tandem, the Commission should adopt baseline requirements to protect consumers.

A broadcast station's noise-limited service contour today typically includes unserved pockets that the ATSC 1.0 signal does not actually reach due to topographical (or similar) conditions. It is AT&T's understanding that the ATSC 3.0 standard offers the capability to address the limitations of the ATSC 1.0 signal. The NPRM recognizes this potential benefit of the ATSC 3.0 standard, as well, noting that ATSC 3.0 transmissions could provide over-the-air coverage "to areas that were previously unserved due to terrain-limited propagation conditions within the contour."[33] Moreover, broadcasters have enormous flexibility within ATSC 3.0 to offer a variety of capacity and coverage areas simultaneously. For example, a broadcaster could choose to provide one video stream with robust reception characteristics, including greater broadcast signal penetration of buildings and other unserved geographic pockets, and simultaneously transmit a second video stream with less robust characteristics (*i.e.*, comparable to that of their current ATSC 1.0 signal).

While the NPRM acknowledges the "dynamic" characteristics of the ATSC 3.0 transmission standard, the ability of broadcasters to deliver their ATSC 3.0 signals to more viewers within their predicted coverage areas is not adequately reflected in the NPRM's

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31 Petition for Rulemaking at 6.

32 *See, e.g.*, *id.* at 4-8.

33 NPRM ¶ 52; *see also id.* ¶ 12 (assuming that "ATSC 3.0 broadcasters will have the ability to broadcast more robust signals").

technical proposals. Indeed, the NPRM seeks only "to maintain the status quo."[34] In more specific technical terms, the NPRM would require a broadcaster to "provide at least one ATSC 3.0 video stream that requires a[n] SNR threshold equal or less than that needed for coverage at a level specified in OET Bulletin No. 69 for DTV service."[35] Significantly, this proposed requirement would not necessarily require broadcasters to ensure that the new capabilities of the ATSC 3.0 standard are used first to address the coverage deficiencies of ATSC 1.0 broadcasts.

The Commission can and should do more in furtherance of the public interest. The Commission should make clear that the core function of broadcasters—namely, "broadcasting," as that term is defined by the Communications Act and the Commission's rules and precedent—remains unchanged before, during, and after the ATSC 3.0 transition.[36] In fact, the Act requires

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34 *Id.* ¶ 47.

35 NPRM ¶ 48.

36 *See* 47 U.S.C. § 153(7) (defining "broadcasting" as "the dissemination of radio communications intended to be received by the public, directly or by the intermediary of relay stations"). As a threshold matter, there is doubt as to whether ATSC 3.0-based video programming service would qualify as "broadcasting" under the Communications Act and the Commission's rules. The Petition for Rulemaking states that the new standard "specifies IP transport for delivery of streaming broadcast video, audio and file content." Petition for Rulemaking at 11. In addition, A/322: 2016 "Physical Layer Protocol" (the "A/322 Standard"), the second component of the ATSC 3.0 physical layer, allows for a dedicated in-band return channel. *See* Advanced Television Systems Committee, *ATSC Standard: Physical Layer Protocol (A/322)*, at 111 (Feb. 9, 2017) (providing that the L1B_return_channel_flag field "shall indicate whether a dedicated return channel (DRC) is present"). It is AT&T's understanding that such a dedicated in-band return channel could be incorporated into an in-home receiver to enable interactive communications between a broadcast facility and the receiver. Thus, it is not clear that a service that relies on IP transport (potentially one-to-one) and incorporates interactivity features (again, potentially one-to-one), as potentially some or all ATSC 3.0-based video programming services may, would qualify as a "broadcasting" (one-to-many) service. Moreover, even if some forms of ATSC 3.0 video service would qualify as broadcasting, others may not, depending on other technical characteristics of the particular service offering and/or whether a fee is charged for certain components (whether integrated or available on a standalone basis) of the ATSC 3.0 video service.

To be clear, AT&T has assumed, solely for purposes of these comments, that some form(s) of ATSC 3.0-based service could qualify as "broadcasting" under the Act and the Commission's rules. AT&T does not take such a position at this time, nor is any statement in these comments intended to suggest or otherwise imply AT&T's position regarding what types or characteristics of ATSC 3.0-based service would or could qualify as broadcasting. To the extent certain ATSC

that broadcast spectrum be used primarily for broadcasting purposes.[37] Thus, with respect to the technical rules the Commission adopts regarding ATSC 3.0 service, the signal coverage of today's ATSC 1.0 signals is not a sufficient baseline. The Commission instead should require broadcasters to transmit a more robust free over-the-air ATSC 3.0 stream for the benefit of over-the-air viewers. More specifically, the Commission should require, as a condition of commencing ATSC 3.0 service, that a broadcaster deliver its primary video programming stream in a manner that covers any areas currently unserved by the ATSC 1.0 signal *before* excess bandwidth may be used to launch any potential ancillary or supplementary service offerings or other voluntary service enhancements. Given the rapid evolution in radio transmission and other technologies, such an objective likely is not out of reach. And considering the new revenue opportunities created by the transition to ATSC 3.0, it is not too much to ask that broadcasters be required to serve *all* viewers in their local markets, consistent with their core obligation to use their spectrum to provide free over-the-air service to the public.[38]

II. THE COMMISSION SHOULD ENSURE THAT CARRIAGE OF ATSC 3.0 PROGRAMMING AND SERVICES IS VOLUNTARY FOR MVPDS

A. Satellite Capacity Constraints Will Prevent AT&T from Carrying Broadcast Signals That Consume Additional Bandwidth

The launch of ATSC 3.0 service poses a significant challenge for MVPDs, and for DBS providers in particular, for whom satellite capacity is a scarce resource. As the Commission is

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3.0 services are not "broadcasting," the Act requires that the services be regulated by the Commission as is appropriate for their classification. *See* 47 U.S.C. § 336(b)(3).

[37] *See, e.g.*, 47 U.S.C. § 336(b) (providing that ancillary/supplementary service offerings must be limited "so as to avoid derogation of any advanced television services, including high definition television broadcasts, that the Commission may require using such frequencies"); 47 C.F.R. §§ 2.106, 73.624(b)-(c).

[38] To the extent discrete, non-interference related over-the-air service gaps will remain post-transition, the Commission should consider requiring broadcasters to address such coverage gaps as a condition of launching ATSC 3.0 service where solutions (*e.g.*, installation of additional signal transmitters, repeaters, or boosters) exist to address them.

aware, DBS providers such as AT&T use spot beam satellites to offer local channels. Spot beam technology divides up a portion of the bandwidth available to a satellite into beams that cover limited geographic areas. Doing so allows particular sets of frequencies to be reused many times. This spectral efficiency unlocked the potential for satellite providers to offer local broadcast signals in the late 1990s, and it enables satellite providers to offer local service today.

The amount of bandwidth allocated to spot beams is fixed on all of the satellites AT&T uses to provide service to DIRECTV customers. In general, AT&T's spot beam satellites were designed so that individual spot beams have enough bandwidth to carry the primary signals of existing channels in the local market or markets covered by the beam.[39] As a result, the vast majority of AT&T's spot beams are now currently full and, in most cases, AT&T does not have the ability to add a station to one of the spot beams without removing one of the stations already on that beam.[40]

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[39] As AT&T's affiliate, DIRECTV, previously explained, such design choices include trade-offs. The amount of bandwidth allocated to individual spot beams and the geographic area covered by an individual spot beam vary inversely with the number of spot beams that can be placed on a satellite. In other words, satellites can be designed with more spot beams covering more local markets—each with relatively lower capacity and a more discrete coverage area—or they can be designed with fewer spot beams covering fewer local markets—each with relatively greater capacity and a larger coverage area. DIRECTV chose to design its satellites, consistent with its carry-one, carry-all obligation, with the goal of serving as many local markets as possible, while also avoiding the potential for excess capacity on its spot beams to lie fallow. *See* Comments of DIRECTV, LLC, MB Docket No. 15-71, at 3 (filed May 13, 2015).

[40] *See, e.g.*, *Amendment to the Commission's Rules Concerning Market Modification; Implementation of Section 102 of the STELA Reauthorization Act of 2014*, Report and Order, 30 FCC Rcd 10406 ¶ 32 & n.178 (2015) (noting that most of DIRECTV's spot beams already are full); *Carriage of Digital Television Broadcast Signals: Amendment to Part 76 of the Commission's Rules; Implementation of the Satellite Home Viewer Improvement Act of 1999; Local Broadcast Signal Carriage Issues and Retransmission Consent Issues*, Memorandum Opinion and Order and Second Further Notice of Proposed Rulemaking, 23 FCC Rcd 5351 ¶¶ 7-14 (2008) ("*HD Carry-One, Carry-All Order*") (detailing satellite carriers' capacity and technological constraints and finding that such constraints justify phasing in the so-called HD carry-one, carry-all requirement for DBS providers).

To the extent broadcasters choose to offer ATSC 3.0 service with any audiovisual enhancements—for example, by broadcasting in 4K Ultra HD (or another, as-yet-undeveloped higher resolution), or merely by continuing to broadcast in HD but with the added feature of high-dynamic-range ("HDR") imaging—such service would consume up to *four times* more capacity on AT&T's satellites than HD ATSC 1.0 signals consume today.[41] AT&T simply does not have capacity on its spot beam satellites to accommodate such additional capacity demands. Furthermore, AT&T would be required to "dual carry" any enhanced ATSC 3.0 signal—*i.e.*, carry both the enhanced ATSC 3.0 signal (whether 4K Ultra HD, HDR, or some other format) as well as the ATSC 1.0 signal (or a downconverted version of the ATSC 3.0 signal). Because ATSC 3.0-enabled enhancements are not backward compatible with DIRECTV customers' existing equipment, AT&T necessarily would have to re-encode any enhanced signal (*e.g.*, 4K Ultra HD in HEVC coding to HD in MPEG4 format) before delivery to DIRECTV customers with current-generation set-top box equipment.[42] Thus, *even if* a 4K/HDR ATSC 3.0 signal or an HD/HDR ATSC 3.0 signal consumed the same amount of capacity as today's HD ATSC 1.0 signal, the need to carry the ATSC 3.0 signal in both an enhanced format *and* HD would

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41 *See* Consumer Technology Association, *Television Technology Consumer Definitions*, https://www.cta.tech/cta/media/Membership/PDFs/Video-Technology-Consumer-Definitions.pdf ("4K has at least 8 million active pixels, with at least 3840 horizontally and at least 2160 vertically."). By way of comparison, HD has resolution up to 1920 pixels horizontally and 1080 pixels vertically, which equals 2 million active pixels. The four-times increase in the number of pixels is just one of several factors that increase the capacity required for an MVPD to deliver 4K (versus HD) to its customers. Other factors include the use of wide color gamuts, increased bit depths, and HDR signaling.

42 *See* NPRM ¶ 9. The real problem lies with higher capability audiovisual formats, such as 4K Ultra HD. Because of the technical changes adopted in the ATSC 3.0 transmission standard (*i.e.*, HEVC), AT&T cannot deliver a 4K-quality broadcast signal to DIRECTV customers 4K Ultra HD televisions (or, for that matter, U-verse customers with 4K Ultra HD televisions) using the vast majority of current-generation set-top box equipment, which receives programming in MPEG4 (or, to a lesser extent, MPEG2) format. Accordingly, to deliver broadcast signals with enhanced audiovisual quality to those customers with televisions/equipment capable of displaying them, as well as to older generation televisions/equipment that display only HD or lesser-quality content, AT&T would be required to dual carry.

preclude DIRECTV's carriage of enhanced ATSC 3.0 signals. The fact that the primary audio/video stream of a single 4K Ultra HD signal takes up *exponentially* more bandwidth than an HD signal transmitted in ATSC 1.0 only compounds this already intractable problem.[43]

In summary, DBS providers are left with no viable option to carry ATSC 3.0 signals that include any audiovisual enhancements. As demonstrated above, AT&T would not be in the position to carry 4K Ultra HD or HDR ATSC 3.0 signals without launching an entire new fleet of spot beam satellites. Absent new spot beam satellites, carriage of such signals would require AT&T to displace one or more other broadcast signals from its spot beams, which, in turn, would violate the Commission's carry-one, carry-all rule.[44] In the alternative, AT&T would be forced to discontinue local service altogether to DIRECTV customers in certain markets, which would harm DIRECTV customers in those affected markets.[45] These capacity constraints demonstrate precisely why the transition to ATSC 3.0 must proceed on a voluntary, market-driven basis.

B. The Commission Should Prohibit Broadcasters from Using the Retransmission Consent Process To Force Carriage of ATSC 3.0 Programming and Services

AT&T is particularly concerned that broadcasters may seek to condition grant of retransmission consent for carriage of their ATSC 1.0 simulcasts on MVPDs' agreement to carry ATSC 3.0 broadcast programming and services. As discussed above, AT&T does not have the satellite capacity to carry both. Retransmission consent negotiations are contentious and complex enough as it is. The addition of ATSC 3.0 signal carriage into the mix would only

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43 Even if AT&T had the network equipment necessary to receive an ATSC 3.0 signal, which it does not, the capacity limitations of AT&T's satellites would limit its ATSC 3.0 carriage to HD, which AT&T would transcode to its own distribution technology. Carriage of anything more would present an insurmountable capacity obstacle.

44 *See* 47 C.F.R. § 76.66(b)(1).

45 *See HD Carry-One, Carry-All Order* ¶ 8 (acknowledging that "subscribers would be harmed … if satellite carriers are forced to drop other programming … in order to free capacity or if they are inhibited from adding new local-into-local markets").

complicate matters further and, most significantly, increase the likelihood of programming blackouts. Moreover, forced ATSC 3.0 carriage would fly in the face of the Commission's goal of facilitating a voluntary, market-driven transition process.[46] The Commission, therefore, should adopt a rule requiring broadcasters to negotiate initial carriage of ATSC 3.0 signals separately from negotiations over carriage of 1.0 signals.

In AT&T's experience, large broadcast station groups routinely seek to tie the grant of retransmission consent for their "must-have" broadcast programming to AT&T's agreement to carry new and/or unpopular cable networks, local channels, and/or multicast content also offered by the corporate parent.[47] Such attempts at forced bundling would be particularly problematic for DIRECTV, because the satellite network does not have sufficient capacity to support carriage of ATSC 3.0 channels transmitted in 4K Ultra HD, HD HDR, or other as-yet-undeveloped higher capability formats. Indeed, due to the existing capacity limitations of AT&T's spot beam satellites, as discussed above, virtually *any* attempt by a broadcaster to force DIRECTV to carry its entire ATSC 3.0 channel would jeopardize DIRECTV's compliance with its carry-one, carry-all obligations. Nevertheless, AT&T has every reason to expect that broadcasters will seek to leverage control over ATSC 1.0 broadcast signals to try to force carriage of ATSC 3.0 channels in markets where DIRECTV does not have available capacity.[48]

The Commission therefore should adopt a rule that prohibits broadcasters from tying retransmission consent of ATSC 1.0 broadcasts to ATSC 3.0 carriage. AT&T supports the rule

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46 *See* NPRM ¶ 35 ("[C]arriage of ATSC 3.0 signals should be voluntary and driven by marketplace negotiations between broadcasters and MVPDs.").

47 *See* note 48, *infra*.

48 *See* Comments of DIRECTV, Inc., MB Docket No. 10-71, at 25 (filed May 27, 2011) (describing situations in which large station groups have threatened "to withhold consent for a station in one market in order to force carriage of a local non-broadcast station in a market where DIRECTV does not have available capacity (and would therefore have to drop a broadcast station to make room, contrary to SHVIA's 'carry one, carry all' requirement)").

language proposed by the Advanced Television Alliance in its comments, specifically: "A station may agree to terms related to the initial carriage of its ATSC 3.0 signal only with an MVPD that, prior to such agreement, has at least one year remaining on a retransmission consent agreement for carriage of the station's ATSC 1.0 signal."[49] AT&T agrees that such a rule is necessary to prevent broadcasters from using MVPDs' desired carriage of ATSC 1.0 signals to compel carriage of any ATSC 3.0 stream(s).

As AT&T's DIRECTV affiliate and numerous other parties have explained in other proceedings, the Commission has broad authority to adopt such targeted retransmission consent reforms to protect the public interest, convenience, and necessity.[50] Section 325(b)(3)(A) of the Act expressly directs the Commission "to govern the exercise by television broadcast stations of the right to grant retransmission consent."[51] It also requires the Commission to "consider … the impact that the grant of retransmission consent by television stations may have on the rates for the basic service tier" and to make sure that the Commission's rules are consistent with its obligation "to ensure that the rates for the basic service tier are reasonable."[52] The Commission's general mandate to govern the exercise of retransmission consent is supplemented by its obligation to adopt and enforce rules that prohibit broadcasters from "failing to negotiate in good faith."[53] These expansive grants of authority plainly empower the Commission to adopt rules designed to ameliorate the demonstrated consumer harms associated with unreasonable

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49 Comments of Advanced Television Alliance, GN Docket No. 16-142, at 25 (filed May 9, 2017). As ATVA explains, the Commission could adopt such a rule either as part of its rules governing the ATSC 3.0 transition or as a requirement of broadcasters' obligation to negotiate in good faith. *See id.* at 27.

50 *See, e.g.*, Letter from John Bergmayer, Public Knowledge, *et al.*, to Marlene H. Dortch, FCC, MB Docket No. 10-71 (filed Dec. 11, 2013) (detailing the Commission's authority to reform the retransmission consent regulatory regime).

51 47 U.S.C. § 325(b)(3)(A).

52 *Id.*

53 *Id.* § 325(b)(3)(C)(ii).

carriage demands by broadcasters, including attempts to bundle must-have ATSC 1.0 channels with ATSC 3.0 programming and/or services.

In addition to the specific mandates of Section 325, Section 309(a) compels the Commission to ensure that broadcast station licensees act in accordance with "the public interest, convenience, and necessity."[54] Broadcast stations were given immensely valuable rights to use the public airwaves—at no charge—in exchange for their commitment to serve the public interest. Central to this public interest obligation is the requirement to ensure the viewing public receives the primary broadcast signal either free over the air or on reasonable terms through an MVPD. Finally, the Commission's ancillary authority complements these concrete statutory responsibilities.[55] These grants of authority thus empower the Commission to adopt rules to ensure its goal of facilitating a voluntary, market-driven transition to ATSC 3.0 transmissions is not undermined through the retransmission consent negotiations process.

C. Broadcasters Should Bear the Costs Associated with ATSC 1.0 Simulcast Arrangements, Not MVPDs

Broadcasters also should be required to reimburse MVPDs for any costs associated with implementing channel sharing arrangements during the ATSC 3.0 transition and, relatedly, to continue delivering good-quality signals to MVPDs. It is important to note as an initial matter that, whether an MVPD carries a broadcast station's signal pursuant to must-carry obligations or a retransmission consent agreement, the MVPD is *obligated* to carry the station.[56] In addition, AT&T, like many MVPDs, relies on over-the-air reception of broadcast signals for retransmission to its customers in a significant number of DMAs throughout the country. Even

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54 *Id.* § 309(a).

55 *Id.* §§ 303(r), 154(i).

56 *See* 47 C.F.R. § 76.66. For broadcast stations that elect retransmission consent, MVPDs have a separate contractual obligation to carry the station.

in cases when AT&T receives a broadcast feed by other means, over-the-air reception often provides vital redundancy to ensure that if the primary mode of transmission fails, AT&T's video subscribers do not lose access to their desired programming.

Thus, when a broadcaster chooses to simulcast on another station's channel, MVPDs necessarily will incur certain equipment, labor, and administrative costs. For example, to facilitate local broadcast service for DIRECTV and U-verse customers, AT&T receives broadcast transmissions at more than 200 remote locations, typically about a five-hour drive from one another. If a station changes transmitter locations, physical changes to the receiving site may be required, which necessitate travel by AT&T's limited number of field engineers to the receiver to assess AT&T's network capabilities at a given site. In addition, channel sharing arrangements often will necessitate the purchase and installation of new antennas, which, in turn, will require the time of tower crews, yet another costly expense.[57] Moreover, the administrative burden of coordinating signal relocations for *multiple* broadcast stations *throughout the country* cannot be overstated.

Absent Commission intervention, MVPDs will bear the burden of these costs, with no prospect of corresponding benefit. To the contrary, MVPDs will incur these costs merely to maintain the status quo—*i.e.*, to continue to receive and retransmit ATSC 1.0 signals to their customers. It therefore is appropriate for broadcasters to reimburse MVPDs for costs associated with ATSC 1.0 simulcasting. To the extent broadcasters are permitted to ignore these costs

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[57] While in most cases AT&T already has equipment in place to receive an ATSC 1.0 host station's existing over-the-air signal, the transmission of an additional primary ATSC 1.0 signal from the same facility often will require new equipment and/or capacity to receive the new simulcast, and there may be other costs associated with maintaining over-the-air reception of the host station's signal, as well.

when deciding to launch ATSC 3.0 service, such cost shifting would be inconsistent with the Commission's goal of facilitating a market-driven transition.

Relatedly, the Commission should make clear that broadcasters bear full responsibility for the cost of delivering its over-the-air ATSC 1.0 signal to MVPDs' existing local receive facilities. Where an MVPD would lose access to the ATSC 1.0 signal when simulcasting commences, or in the event the quality of the over-the-air simulcast would be degraded as compared to the pre-transition signal, the broadcaster should have the obligation to implement an appropriate technical solution to resolve the signal loss or degradation. Acceptable resolutions for ATSC 1.0 simulcast signal loss or degradation would include: (1) installation of a technical solution to extend the over-the-air signal; (2) reimbursement of the affected MVPD's costs to re-establish over-the-air reception of the ATSC 1.0 signal; (3) provision of a fiber feed; or (4) any other mutually acceptable resolution. In all events, the Commission should clarify that a broadcaster is prohibited from displacing the cost of over-the-air ATSC 1.0 simulcast delivery.[58]

III. THE COMMISSION SHOULD ADOPT RULES THAT PROVIDE FOR AN ORDERLY TRANSITION

A. Broadcasters Should Be Required To Provide Sufficient Notice of Transition Plans to MVPDs

Among the steps the Commission can and should take to ensure that the transition to ATSC 3.0 transmissions is not unduly disruptive to MVPDs and their customers, the adoption of robust notice requirements is critical.[59] As discussed above, the ATSC 3.0 transition inevitably will impose certain costs and burdens on MVPDs such as AT&T, not the least of which being the

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[58] For example, the Commission could incorporate such principles into its ATSC 3.0 transition rules or, in the alternative, make it a *per se* violation of the good faith rules for a broadcaster to require an MVPD to absorb any cost associated with implementing ATSC 1.0 simulcast arrangements, or maintaining (or re-establishing) access to a good-quality over-the-air ATSC 1.0 signal (by whatever means).

[59] *See* NPRM ¶ 37.

burden of coordinating with individual stations and making necessary network changes and upgrades to ensure AT&T customers do not lose access to desired broadcast programming as a result of relocated ATSC 1.0 signals. MVPDs will require adequate lead time and specific information regarding broadcasters' plans to manage the transition process.

Amount of Notice. As discussed above, the implementation of network changes necessary to accommodate broadcasters' ATSC 1.0 simulcasts will impose substantial burdens on MVPDs in terms of both economic and administrative costs, with nationwide satellite distributors such as AT&T shouldering a particularly heavy load. The relative costs associated with the ATSC 3.0 transition will be greatest for AT&T during the channel reassignment and repack process now underway following the completion of the broadcast incentive auction. Accordingly, AT&T submits that any broadcaster that chooses to transition to the ATSC 3.0 transmission standard during the post-auction transition period should be required to provide MVPDs with additional time to plan and prepare. In particular, AT&T proposes that, for the duration of the post-auction transition period, broadcasters should be required to provide a minimum of 120 days' advance notice to all affected MVPDs before relocating any ATSC 1.0 programming stream in connection with the ATSC 3.0 transition.

While AT&T welcomes any efficiencies that may be possible by combining the post-auction channel reassignment and repack process with the ATSC 3.0 transition, the former must take precedence over the latter. AT&T, for example, will be required to coordinate the channel reassignments of approximately 1,000 local stations during the repack to ensure that its DIRECTV and U-verse networks continue to receive, transcode, and retransmit broadcast signals seamlessly to customers. Critically, this number does not include those stations that may enter

into channel sharing agreements pursuant to the Commission's recent order,[60] which is unknowable at this time. AT&T's engineering and network management resources, like those of the broadcasters, will be stretched during the post-auction transition period. A broadcaster's decision to transition to ATSC 3.0 transmissions at the same time the repack process is ongoing will only add to the potential complications and burdens of the repack. Thus, to the extent any broadcaster seeks to transition to ATSC 3.0 transmissions while the 39-month repack process is ongoing, such a broadcaster should be required to provide affected MVPDs with more notice than the Commission might otherwise require.

For broadcasters that transition after the repack, the Commission should adopt a 90-day advance notice period. Significantly, a 90-day notice requirement is consistent with the notice obligations adopted in the Commission's recent *Post-Auction Channel Sharing Order*.[61] Such notice thus should be sufficient for AT&T to implement network changes necessary to accommodate voluntary broadcast channel sharing arrangements in most circumstances.

Contents and Form of Notice. The Commission also should specify the minimum contents of broadcasters' ATSC 3.0 transition notices to MVPDs.[62] Consistent with the notice requirements adopted in the *Post-Auction Channel Sharing Order*, AT&T proposes that ATSC 3.0 notices include the following information:

- Date and time of any channel changes;

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60 *See Expanding the Economic Innovation Opportunities of Spectrum Through Incentive Auctions; Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television Translator Stations; Channel Sharing by Full Power and Class A Stations Outside the Broadcast Television Spectrum Incentive Auction Context*, Report and Order, 32 FCC Rcd 2637 (2017) ("*Post-Auction Channel Sharing Order*") (adopting rules to permit channel sharing arrangements outside of the context of the incentive auction).

61 *See id.* ¶ 51.

62 *See* NPRM ¶ 38.

- Channel occupied by the station before and after implementation of the channel sharing arrangement;
- Modification, if any, to antenna position, location, or power levels;
- Stream identification information, including program numbers for each programming stream; and
- Engineering staff contact information.[63]

To the extent an MVPD and broadcaster agree to terms for carriage of any ATSC 3.0 broadcast service, the broadcaster also should provide comparable information for the ATSC 3.0 signals, to the extent applicable. With respect to the form of notice, AT&T typically relies on (and prefers) email to communicate with local broadcast stations but believes that individual MVPDs and broadcast stations should be free to mutually agree to communicate by alternative means.

B. Broadcasters Should Be Required To File Their Simulcast Agreements

AT&T supports the NPRM's proposal to require broadcasters to file their simulcast agreements with the Commission.[64] Simulcast agreements will include important information regarding the manner in which each broadcaster's ATSC 1.0 signal will be transmitted. As such, review of the terms of simulcast agreements will be critical to confirm whether broadcasters are living up to their ATSC 1.0 service requirements and thus satisfying their broader public interest obligations. AT&T further proposes that the Commission require broadcasters make their simulcast agreements available to in-market MVPDs. Absent such a requirement, the Commission is unlikely to be able to meaningfully review all simulcast agreements that broadcasters submit. Moreover, as discussed above, MVPDs have a real stake in ensuring that broadcasters live up to their ATSC 1.0 service obligations during and throughout the transition to

63 *See Post-Auction Channel Sharing Order* ¶ 51; *see also* NPRM ¶ 38.
64 NPRM ¶ 13.

the ATSC 3.0 transmission standard. It therefore is appropriate that MVPDs that would be directly affected by simulcast agreement have the opportunity to identify and resolve (whether privately or before the Commission) any issues flowing therefrom.

CONCLUSION

As the discussion above makes clear, the stakes in the ATSC 3.0 transition are high—not only for broadcasters, but also for over-the-air viewers, MVPDs, and MVPD subscribers. AT&T therefore urges the Commission to take necessary steps to protect these parties (none of which stand to claim any economic benefit flowing from the transition to the ATSC 3.0 transmission standard) from harm that otherwise could result during the ATSC 3.0 transition. Similarly, the Commission also should adopt rules that require broadcasters to first use the technological advances enabled by ATSC 3.0 to benefit consumers through the delivery of robust over-the-air broadcast service before they deploy other innovations. Finally, consistent with the recommendations described above, the Commission should prevent broadcasters from forcing MVPD carriage of ATSC 3.0 signals by adopting appropriate (and limited) safeguards for retransmission consent negotiations.

Respectfully submitted,

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